



Technology and Learning Connections

Increasing student achievement through the systemic alignment of technology, policies, and curriculum in a multi-tiered system of supports.

Assistive Technology in the Classroom – Exploration Guide



Six curricular activities have been designed to showcase a continuum of strategies and tools to support student success.

When considering assistive technology solutions for your students it is important to first start with student need and then match those needs with device features. Below is a list of potential features to consider as you explore:

- Ease of use
- Portability
- Durability
- Language structure/vocabulary
- Symbols (photos/line drawings)
- Quality of voice output (digitized/synthesized)
- Rate enhancement options
- Alternate access (scanning)
- Keyboard layout/word prediction
- Display options (size, color, contrast, large print)
- Customizability
- Use in multiple environments



Always remember to include the **student** in the selection process.

Space has been provided to take notes so you can use this as a reference when you return to your school.

Activity 1 - Reading

Lesson Title:	Grade Level:
The Grouchy Ladybug	Pre-K
Standard(s): Emergent Reading	
<ol style="list-style-type: none"> 1. <u>Shows motivation for reading</u> Benchmark A: Child enjoys reading and reading related activities Benchmark B: Child interacts appropriately with books and other materials in a print-rich environment 2. <u>Shows age appropriate phonological awareness</u> Benchmark F: Child combines onset and rime to form a familiar one syllable word with and without pictorial support 	
Learning Goal(s):	
<p>The student will identify/tell 2 words from a passage read aloud.</p> <p>The student will recall a key detail from the story using picture cues.</p>	
Lesson Sequence:	
<p>Large group story reading of "The Grouchy Ladybug"</p> <ul style="list-style-type: none"> • Introduce, explore, and read the story aloud to a small group. On each page, allow time for students to comment on the pictures. Talk about the pictures using the words from the book while using the core-fringe communication board for aided language/modeling. • Read the story to the large group during story time over the course of several days. As you read provide <u>an expectant pause</u> for the students to chime in with vocabulary such as the names of animals. • Using the TechSpeak communication device with overlay, <u>model</u> the use of the device as you read the story by activating the messages in context. Encourage the students to use/imitate the messages in context by pausing expectantly (with the device within their reach). Further cues, if needed, may include: gesturing toward the device (or specific message icon) or asking them a question like, "Hmmm, what comes next?" Reinforce communication from the students, whether using the device or their voices, by smiling and then continuing with the story. • Once students are familiar with the story, the LITTLE Step-by-Step, labeled with the symbol of animals, and programmed with the names of the animals the ladybug encounters (in order) can be incorporated into the lesson. 	
Assistive Technology Strategies and Tools (additional information on back):	
<ul style="list-style-type: none"> • Low tech tools: <ul style="list-style-type: none"> ○ Page fluffers to make page turning easier ○ Carpet square to hold book ○ Build a Sentence ○ R.A.A.P. strategy card for using aided language/modeling during storybook reading • Access: <ul style="list-style-type: none"> ○ iPad with I Like Books (features read aloud pages and word-by-word text highlighting, pages turn with a tap) and Read2Go apps; Big Grips case biggrips.com or amazon.com • Communication: <ul style="list-style-type: none"> ○ BIGmack with message "turn the page" and symbol/label ○ LITTLE Step-by-Step with names of animals recorded ○ Core-fringe communication board for story (this board and others like it can be found at boardmakeronline.com) ○ TechSpeak – overlay for reading and answering questions about story 	






Activity 1 Reading - AT Strategies and Tools

Tool	Description and operation	Notes
Core Fringe Communication Board 	<p>This core-fringe communication board is designed with 50 high frequency core words on the page and 20 fringe words pertaining to the story at the top.</p> <p>Available at www.boardmakeronline.com</p>	
BIGmack 	<p>Record any single message directly into the BIGmack communicator and press the surface to activate. 2 minutes of recording time.</p> <p>\$129 www.ablenetinc.com</p> <p>On/off/volume: roll dial Record: directions on back</p>	
LITTLE Step-by-Step 	<p>Record a series of messages into the Step-by-Step Communicator and press its activation surface for the first message. Press again to hear the next message. 2 minutes of recording time; SBS w/levels has 4 minutes.</p> <p>From \$159 www.ablenetinc.com</p> <p>On/off/volume: roll dial Record: directions on back</p>	
TechSpeak 	<p>A thirty-two message multi-level durable communication device accessed through direct selection. Also has scanning version. Recording time up to 28 minutes.</p> <p>From \$497 www.amdi.net</p> <p>On/off/volume: turn knob Change overlay: Adjust "level select" knob Record: Simultaneously press "record" and message area.</p>	
iPad and I Like Books app 	<p>"I Like Books" app features 37 full color stories appropriate for early childhood, with stunning photography, simple story lines, auto play option, or independent page turning with a swipe or tap. Comes with built in text highlighting as text is read aloud.</p> <p>\$2 iTunes Store</p>	

Activity 2 - Writing/Research

Lesson Title:	Grade Level:
Creating an Outline	Upper Elementary
Standard(s):	
<p>Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</p> <p>Access Points</p> <p><u>LAFS.4.W.4.AP.10a:</u> Write routinely over shorter time frames using a variety of writing opportunities (e.g., journal entry, letter, graphic organizer) for a range of discipline-specific tasks, purposes, and audiences.</p> <p><u>LAFS.4.W.4.AP.10b:</u> Write routinely in a genre over extended time frames to engage in the writing process (planning, drafting, editing, revising, and publishing) for a range of discipline-specific tasks, purposes, and audiences.</p>	
Learning Goal(s):	
Use an outline to create a research report.	
Lesson Sequence:	
In this lesson, students use passages from informational texts to develop research questions, classify and categorize information to answer research questions, classify and categorize information into an outline form, and then use that outline to create a research report.	
Assistive Technology Strategies and Tools (additional information on back):	
<ul style="list-style-type: none">• Low tech tools:<ul style="list-style-type: none">○ Alternate pencil○ Raised line paper○ Slant board○ Pencil grips○ Folder Sentence Writing Activities – w/ & w/out symbol support○ Predictable Writing Chart○ Animal Research Report Graphic Organizer• Access:<ul style="list-style-type: none">○ Joystick for onscreen keyboard• Communication:<ul style="list-style-type: none">○ QuickTalker 12• Surface Tablet or Chromebook with Co:Writer Universal	

Activity 2 Writing/Research - AT Strategies and Tools





Tool	Description and operation	Notes
Franklin Children's Dictionary with Spell Correction 	<p>A dictionary that is fun and educational. Created specifically for children ages 6 & up to help learn spelling, writing, and grammar. Contains:</p> <ul style="list-style-type: none"> Over 40,000 definitions, written specifically for children ages 6 and up Spell correction for over 46,000 words Six educational games: Hangman, Jumble, Flashcards, Tic-Tac-Toe, Guess the Word <p>Amazon.com</p>	
QuickTalker 12 	<p>A portable dedicated speech generating device that features 12-message locations and 12-minutes of record time. Simply switching between the five available recording levels provides up to 48-messages. Includes built-in carrying handle.</p> <p>\$185 www.ablenetinc.com</p>	
Rock Adapted Joystick 	<p>The Rock Adapted Joystick features functionality of a traditional mouse in a joystick that requires minimal hand movement. Includes 3 interchangeable joystick handles - a straight stem, a T-bar, and large soft ball.</p> <p>\$725 www.ablenetinc.com</p>	
On Screen Keyboard Windows Accessibility Features 	<p>Accessibility options are built into Windows to help users who may have trouble using their computers in the typical way.</p> <p>Windows has an On-Screen Keyboard (OSK), an Ease of Access tool. Use the OSK instead of a physical keyboard to move around the PC and enter text. The OSK displays a visual keyboard with all the standard keys. Select keys using the mouse or other device.</p>	
Surface Tablet/Chrome Book with Co:Writer Universal 	<p>Co:Writer Universal for Google Chrome uses grammar- and vocabulary-smart word prediction to help students better express their ideas in writing across devices. Built-in speech recognition adds an entirely new way of getting ideas out.</p> <p>Don Johnston Inc. </p>	

Activity 3 - Math

Lesson Title:	Grade Level:
Positive and negative numbers	Middle/High School
Standard(s):	
<p>Standard MAFS.6.NS.3.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electrical charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of zero.</p> <p>Access Point MAFS.6.NS.3.AP.5a Represent positive or negative numbers on a number line given a real world situation</p>	
Learning Goal(s):	
Students will identify numbers as positive or negative, locate positive and negative numbers on a number line, and plot positive and negative numbers on a number line.	
Lesson Sequence:	
Given a picture depicting above and below sea level, the students will place icons of animals on the picture to indicate whether they are above (+) or below (-) sea level which represents (0). The student would then take positive and negative numbers and place them on the picture (+) above sea level or (-) below sea level. The next step would be to transfer the positive and negative numbers to a number line.	
Assistive Technology Strategies and Tools (additional information on back):	
<ul style="list-style-type: none"> • Low tech tools: <ul style="list-style-type: none"> ○ Number line ○ Adapted rulers ○ Number and signs stamps ○ Talking Calculator • Access: <ul style="list-style-type: none"> ○ All-Turn-It Spinner with switch - Pictures of animals can be placed on the spinner as well as positive and negative numbers for selection* • Communication: <ul style="list-style-type: none"> ○ Pixon Project Kit – Core-fringe manual communication board ○ Step-by-Step – script* ○ iTalk 2 – 2 message options: “above water”/”below water” or “positive”/”negative” ○ On the Go Communicator 	

*item displayed with another activity

Activity 3 Math - AT Strategies and Tools

Tool	Description and operation	Notes
<p>All-Turn-It Spinner</p> 	<p>The All-Turn-It-Spinner is switch activated and allows users to participate in games that involve randomization. It has three access methods: direct switch on the device, a switch port on the side of the device, and a wireless switch capability.</p> <p>\$119 www.ablenetinc.com Press switch to activate spinner.</p>	
<p>Talking Calculator</p> 	<p>Simplify arithmetic by providing a calculator with speech output. It voices numeric entries and computations in easy-to-understand speech (English only).</p> <p>From \$14 www.attainmentcompany.com Features volume control, mute option and angled display. Designed for desktop use.</p>	
<p>Pixon Project Kit</p> 	<p>A customizable manual communication board with 50-200 single meaning pictures (Pixons) symbolizing core vocabulary. Developed as a transition to voice output devices, to promote language development and support maximal language production.</p> <p>\$150 www.aacinstitute.org</p> <p>Find and point to desired message. High frequency core messages are arranged at the bottom while fringe vocabulary at the top is arranged by topic as indicated on the tabs.</p>	
<p>iTalk 2</p> 	<p>Record two messages on this dedicated speech generating device and then play back by activating the switch tops. Includes 2-minutes of record time and supports the use of two external switches for alternative methods of access.</p> <p>\$159 www.ablenetinc.com</p>	
<p>On the Go Communicator</p> 	<p>Pressure sensitive screen adapts to a student's developing communication needs with overlays for 1, 2, 4, 8, 16 messages. Total recording time is 5 minutes.</p> <p>\$399 enablingdevices.com</p>	

Activity 4 - Planning/Goal Setting

Lesson Title:	Grade Level:
Trip to the Zoo	Upper Elementary
Standard(s): Task Management	
<p>SP.PK12.US.2.2a – Use effective time management, and organizational skills, including using a visual schedule or calendar and locating and sorting information</p> <p>SP.PK12.US.2.2b - Use effective time management, and organizational skills, including using a visual schedule or daily planner, setting goals and priorities, locating, organizing, and sorting information.</p> <p>Access Points</p> <p><u>SP.PK12.US.10.1a</u> - Complete routines and tasks according to instructions and expectations</p> <p><u>SP.PK12.US.10.2a</u> - Sequence two or more tasks to complete activities</p> <p><u>SP.PK12.US.10.3</u> - Use organizational strategies related to planning, scheduling, time management, self-monitoring, and managing materials.</p> <p><u>SP.PK12.US.1.6</u> - Select and apply effective problem-solving skills and strategies to solve personal, academic, and community-based problems.</p>	
Learning Goal(s):	
<p>Students will:</p> <ul style="list-style-type: none"> • use their time management skills to determine how many animals can be seen within a limited time frame • use their organizational skills to create a plan for the best walking path to see the most animals within the time constraint • collaborate as a whole class to determine if the walking path goal can be accomplished • use a variety of strategies, resources, and materials to organize and create the plan for the trip to the zoo 	
Lesson Sequence:	
Planning and organizing a trip to the zoo.	
Assistive Technology Strategies and Tools (additional information on back):	
<ul style="list-style-type: none"> • Low tech tools: <ul style="list-style-type: none"> ○ Visual schedule – zoo trip ○ Scavenger Hunt boards – 3 levels ○ Graphic organizers – plan to see animals ○ First-then card ○ Zoo Story • Access: <ul style="list-style-type: none"> ○ All-turn-it Spinner with switch on Latitude mount to select animals and where they are on the map • Communication: <ul style="list-style-type: none"> ○ Eye gaze panel – high contrast symbols ○ Step by Step – with zoo script* ○ TechTalk – planning overlay/goal setting overlay • Vision: <ul style="list-style-type: none"> ○ Ruby XL - Handheld video magnifier 	

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Activity 4 Planning/Goal Setting - AT Strategies and Tools






Tool	Description and operation	Notes
Ruby XL 	<p>RUBY handheld video magnifiers provide the help that many people with low vision need to read text and see details. All RUBY models have a crisp, sharp image, high-contrast modes, and built-in LEDs.</p> <p>\$895 www.freedomscientific.com</p>	
All Turn It Spinner 	<p>The All-Turn-It-Spinner is switch activated and allows users to participate in games that involve randomization. It has three access methods: direct switch on the device, a switch port on the side of the device, and a wireless switch capability.</p> <p>\$119 www.ablenetinc.com Press switch to activate spinner.</p>	
Latitude Mount 	<p>The Latitude™ Customizable Mounting System provides an ideal balance of strength, durability, and flexibility. From a standardized base interface, to quick-release levers, to a universal plate connector, the Latitude™ ARM gives you all the options of a mounting system that costs much more.</p> <p>\$330 www.ablenetinc.com Attach to a sturdy surface. Adjust joints for optimal placement of switch/device.</p>	
LITTLE Step-by-Step 	<p>Record a series of messages into the Step-by-Step Communicator and press its activation surface for the first message. Press again to hear the next message. 2 minutes of recording time; SBS w/levels has 4 minutes.</p> <p>From \$159 www.ablenetinc.com</p> <p>On/off/volume: roll dial Record: directions on back</p>	
TechTalk 	<p>An 8 message multi-level durable communication device accessed through direct selection. Also has scanning version.</p> <p>Recording time up to 14 minutes.</p> <p>From \$395 www.amdi.net</p>	
Eye Gaze Panel 	<p>The eye gaze panel is a clear plastic board with the center cut out. Pictures are placed around the edges of the board. The size and number of pictures depends on the abilities of the user.</p> <p>Variety of vendors</p> <p>With the board held vertically, the user looks at the picture of their choice and then at their communication partner. The partner interprets the eye gaze by confirming the choice verbally.</p>	

Activity 5 - Cooperative Learning

Lesson Title:	Grade Level:
Bagel Breakfast Sandwich	Middle/High School
Standard(s): Health & Nutrition	
<p>HE.7.P: Health Literacy Promotion - Self-Management – Demonstrate the ability to practice advocacy, health-enhancing behaviors, and avoidance or reduction of health risks for oneself</p> <p>HE.7.P.7.1 - Examine the importance of assuming responsibility for personal-health behaviors.</p> <p>Access Points</p> <p>HE.7.P.7.In.1 - Describe the importance of assuming responsibility for personal-health behaviors, such as participating in physical activity, having good eating habits, and managing stress effectively</p> <p>HE.7.P.7.Su.1 - Identify the importance of assuming responsibility for personal-health behaviors, such as participating in physical activity, having good eating habits, and managing stress effectively</p> <p>HE.7.P.7.Pa.1 - Recognize that it is important to have good personal-health habits</p>	
Learning Goal(s):	
<p>Students will work together to create a healthy breakfast meal for the class. Individual students will fill group roles, such as shopper, cook, cook's helper, nutritionist, food critic, etc. Opportunities to comment, express opinions, and direct actions will be part of the activity.</p>	
Lesson Sequence:	
<p>Bagel Breakfast Sandwich (http://yourspecialchef.weebly.com/uploads/7/8/7/5/7875962/bagelbreakfastsandwich.pdf)</p> <p>Present the picture recipe. Students identify individual ingredients and identify the cooking actions necessary to prepare the recipe. In addition, each ingredient is placed into a graphic organizer of the basic food groups (from Kidspiration 3). Students have the opportunity to indicate: if they like or dislike the taste of the ingredients; if a fellow student placed the ingredient correctly in the proper location on the graphic organizer; if the ingredient is a healthy or unhealthy choice; and if they like the finished product once the recipe is completed.</p>	
Assistive Technology Strategies and Tools (additional information on back):	
<ul style="list-style-type: none"> • Low tech tools: <ul style="list-style-type: none"> ○ Picture recipe ○ Opinion cards – choose 1 of 3 food groups ○ Graphic organizer – 3 levels ○ Predictable writing chart – Healthy Foods • Access: <ul style="list-style-type: none"> ○ PowerLink and toaster* ○ Big Keys keyboard with colored keys • Communication: <ul style="list-style-type: none"> ○ Platform Communicator – symbols and/or objects represent actions ex. spoon-stirring/knife-chop, spread, cut/measuring cup-measure ○ iPad with TouchChat, Wholesome, and Bitsboard apps; Trident case www.tridentcase.com or amazon.com ○ iPod Touch and Bluetooth keyboard with Remember the Milk app 	

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Activity 5 Cooperative Learning - AT Strategies and Tools

Tool	Description and operation	Notes
PowerLink 	<p>This unit allows switch operation of electrical appliances. Offers 4 modes of control: Timed in seconds, Timed in minutes, Direct, and Latch. It has two duplex outlets and allows connecting two wired switches or one wireless switch.</p> <p>\$239 www.ablenetinc.com Plug PowerLink into wall socket. Plug in switch and low voltage appliance. Set switch parameters. Activate switch to turn on appliance.</p>	
Big Keys 	<p>Big Keys keyboards provide users with large, high-visibility keys that are easy to see. The larger keys provide a larger strike area that is easier to access compared to standard keyboards, making it easier for users who lack fine motor movements.</p> <p>\$140 www.enablemart.com</p>	
Platform Communicator 	<p>Ideal for teaching communication skills and object/word relationships. Place objects, words or pictures on the raised platform, press the appropriate switchplate and lights and a 5-second pre-recorded voice message will play for each switchplate.</p> <p>\$199 enablingdevices.com On/off/volume: turn switch and press a key to hear message Record: simultaneously press and hold red button and plate and speak message - release.</p>	
iPod Touch with Bluetooth Keyboard 	<p>The iPod Touch is a multipurpose pocket computer designed and marketed by Apple with a touchscreen-based user interface. Apps can be loaded for a variety of functions such as communication, reading, writing, math, and executive functioning,</p> <p>The Bluetooth keyboard can be wirelessly paired with the iPod Touch for typing purposes.</p> <p>www.apple.com</p>	
iPad and TouchChat app 	<p>Customizable software application on Apple devices using SymbolStix that includes text-to-speech, word prediction, and grammar engine. Has many pre-programmed vocabulary sets.</p> <p>\$149-299 www.silver-kite.com On/off: Press home button or power button Press switch to start scanning – when choice is highlighted press switch again.</p>	

Activity 6 – Strategies for Materials Organization and Self-Regulation

Lesson Title:	Grade Level:
Self-Advocacy	K-12
Standard(s):	
SP.PK12.US.2.2b: Use effective time-management, planning, and organization skills and strategies, including using a visual schedule or daily planner, setting goals and priorities, and locating, organizing, and sorting information. SP.PK12.US.19.6: Self-advocate for personal needs in a socially appropriate manner.	
Learning Goal(s):	
Students will participate in self-advocacy based tool selection to assist them in using strategies to organize and self-regulate.	
Lesson Sequence:	
Calming strategies Time management Organization	
Assistive Technology Strategies and Tools (additional information on back):	
<ul style="list-style-type: none"> • Low tech tools: <ul style="list-style-type: none"> ○ 5 point scale ○ Color coded schedule ○ Time Timer ○ Individual writing toolkit ○ I'm working for ○ Parts of speech booklet ○ My Mini Office - folder of strategies/bookmarks (available at fdlrsregion3genedbehaviorvisuals.wikispaces.com) ○ CD case with cue cards ○ Social Story "Why should I do my homework?" • Access: <ul style="list-style-type: none"> ○ Candy Corn switch, fan, and PowerLink • Communication: <ul style="list-style-type: none"> ○ Logan ProxTalker ○ Symbol Communicator for the Blind ○ iPad with Proloquo2Go, Evernote, 30/30 apps ; OtterBox case www.otterbox.com or amazon.com • BYOD (Bring Your Own Device) <ul style="list-style-type: none"> ○ Take photo or audio note of assignments on board ○ Digital schedule with text reminders or auditory/tactile alerts, speech to text for memos ○ Photo of solutions written on board in class ○ Scheduled breaks with text reminders or auditory/tactile alerts 	

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Activity 6 Materials Organization and Self-Regulation - AT Strategies and Tools

Tool	Description and operation	Notes
Candy Corn Switch 	<p>A compact, wired proximity sensor switch that activates when a body part is within 10-mm of the switch top. Features visual and auditory feedback, and a 1/8-in/3.5-mm mono switch plug.</p> <p>\$189 www.ablenetinc.com</p>	
PowerLink 	<p>This unit allows switch operation of electrical appliances. Offers 4 modes of control: Timed in seconds, Timed in minutes, Direct, and Latch. It has two duplex outlets and allows connecting two wired switches or one wireless switch.</p> <p>\$239 www.ablenetinc.com</p> <p>Plug PowerLink into wall socket. Plug in switch and low voltage appliance. Set switch parameters. Activate switch to turn on appliance.</p>	
Logan ProxTalker 	<p>Each Sound Tag (chip) is encoded with a unique radio frequency identification code. There are five word zone buttons making it possible for a complete sentence to be formed.</p> <p>From \$2395 www.proxtalker.com</p> <p>To play a message: place a sound tag on a zone button and press. The ProxTalker detects the tag and speaks the word associated with it.</p>	
Tactile Symbol Communicator for the Blind 	<p>Perfect for the totally blind or dual sensory impaired. This portable symbol communicator can store 6 messages on 6 levels for a total of 36 6-second messages. Touch one of the six removable tactile symbols to activate a message and at the same time you will feel a vibration, which can be turned off if not desired.</p> <p>\$430 www.enablingdevices.com</p>	
Time Timer 	<p>As the time elapses, the red disk disappears, creating a graphic image of the passage of time. Comes in a variety of sizes including a watch, a software version that can be used on the computer, and an app for iDevices.</p> <p>\$2-85 www.timetimer.com</p>	
iPad with Proloquo2Go 	<p>Customizable software application on Apple devices using SymbolStix that includes text-to-speech, word prediction, and grammar engine. Has several built in applications that include keyword retrieval or phrase based communication.</p> <p>\$219 www.assistiveware.com</p>	